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Stefano Prettegiani

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8606

156

7590

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Kirschstein, Israel, Schiffmiller & Pieroni, P.C.

425 FIFTH AVENUE

5TH FLOOR

NEW YORK, NY 10016-2223

EXAMINER

MEW, KEVIN D

ART UNIT

PAPER NUMBER

2416

NOTIFICATION DATE

DELIVERY MODE

09/03/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

AI@KIRSCHSTEINLAW.COM

ptoofficeactions@yahoo.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,714	<b>Applicant(s)</b> PRETTEGIANI, STEFANO	
	<b>Examiner</b> Kevin Mew	<b>Art Unit</b> 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20,24-26,29,30,33,34 and 38 is/are rejected.
- 7) ☒ Claim(s) 21-23,27,28,31,32 and 35-37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/10/09</u> .   | 6) <input type="checkbox"/> Other: _____                          |

***Detailed Action***

***Response to Amendment***

1. Applicant's Remarks/Arguments filed on 6/10/2009 have been considered. Claims 20-38 are currently pending.
2. Acknowledgement is made of the amended drawings with respect to the objection to the drawings as set forth in the previous Office action. The corrections are acceptable and the objection to the drawings has been withdrawn.
3. Acknowledgement is made of the amended claims 25 and 30 with respect to the claim objections as set forth in the previous Office action. The corrections are acceptable and the claim objections have been withdrawn.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20, 24-26, 29-30, 33-34, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dally (US Publication 2003/0058848) in view of Wu et al. (US Publication 2003/0021267).

Regarding claim 20, Dally discloses a switching network for switching frames of data, in defined time-slots, of a cross-connection request between a desired input and a desired output, comprising an input stage consisting of a plurality of switching matrices (input stage comprising links ABCDEFGH going into a plurality of its switching matrices, paragraph 0043 and Fig. 4B), and an output stage consisting of a plurality of switching matrices (output stage comprising links HDFABAE C going out of its plurality of switching matrices, paragraph 0043 and Fig. 4B), including a controller for routing each time-slot of each frame independently through the switching matrices (time slots are routed separately for each set of calls, paragraphs 0025, 0023).

Dally may not explicitly show an intermediate stage consisting of a plurality of switching matrices, each input stage switching matrix having a link to each intermediate stage switching matrix and each intermediate stage switching matrix having a link to each output stage switching matrix.

However, Wu teaches a three-stage T-S-T switch wherein the intermediate stage comprises a plurality of switching matrices, each input stage switching matrix having a link to each intermediate stage switching matrix and each intermediate stage switching matrix having a link to each output stage switching matrix (paragraphs 0048-0057 and Figs. 7A-7D).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cross-connect switch of the switching network of Dally with teaching of Wu in having a three-stage T-S-T switch comprising a plurality of switching matrices, each input stage switching matrix having a link to each intermediate stage switching matrix and each intermediate stage switching matrix having a link to each output stage switching

matrix (paragraphs 0048-0057, Figs. 7A-7D) such that the cross-connect (intermediate stage) of Dally will show an intermediate stage consisting of a plurality of switching matrices, each input stage switching matrix having a link to each intermediate stage switching matrix and each intermediate stage switching matrix having a link to each output stage switching matrix.

The motivation to do so is to create a smooth grooming switch that is rearrangeably non-blocking for arbitrary multicast traffic.

Regarding claim 24, Dally discloses the switching network as claimed in claim 20, in which the routing controller is arranged to create a list of free time-slots in the links between the intermediate stage switching matrices and the input and output stage switching matrices of the request when a cross-connection request is received (a set of free time slots are arranged between the middle stage for the set of calls, paragraphs 0025, 0023).

Regarding claim 25, Dally discloses the switching network as claimed in claim 20 in which the links are time division multiplex links (the calls are divided by time slots and the time slots are multiplexed, paragraphs 0025, 0023).

Regarding claim 26, Dally discloses the switching network as claimed in claim 20, in which the number of intermediate stage switching matrices (there are 4 matrices in the middle stage, Fig. 4B) is at least two less than the sum of the number of inputs of each input stage

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switching matrix and outputs of each output stage switching matrix (the sum of the number of inputs of each input stage switching matrix and outputs of each output stage switching matrix is  $4 + 4$ , which is 8; thus the number of middle stage matrices is at least two less than the sum of the number of inputs of each input stage switching matrix and outputs of each output stage switching matrix, Fig. 4B).

Regarding claim 29, Dally discloses the switching network as claimed in claim 20, in which the routing controller is arranged to reassemble the individually-routed time-slots into frames at the output of the output stage switching controller (each of the time slots that comprises a different frame is generated at the output, Fig. 10).

Regarding claim 30, Dally discloses the switching network as claimed in claim 20, in which the switching matrices are adapted to receive standard data traffic from which internally-generated frames replacing at least some overhead have been created (time slots are created in the middle stage for a first set of calls, paragraph 0023).

Regarding claim 33, Dally discloses a digital cross-connect, comprising: a switching matrix switching network-for switching frames of data, in defined time-slots (time slots 1, 2, 3, 4 and so on, Fig. 5-8, 10), of a cross-connection request between a desired input and a desired output (desired input and output, Figs. 5-8, 10), the switching network including all input stage

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having a plurality of switching matrices (input stage comprising links ABCDEFGH going into a plurality of its switching matrices, paragraph 0043 and Fig. 4B), an intermediate stage having a plurality of switching matrices (middle stage comprising links ABFCHDE going into its plurality of switching matrices, paragraph 0043 and Fig. 4B), and an output stage having a plurality of switching matrices (output stage comprising links HDFABAEC going out of its plurality of switching matrices, paragraph 0043 and Fig. 4B), each input stage switching matrix having a link to each intermediate stage switching matrix (each input stage having a link to each middle stage matrix, paragraph 0043 and Fig. 4B), and each intermediate stage switching matrix having a link to each output stage switching matrix (each middle stage switching matrix having a link to each output stage switching matrix, paragraph 0043 and Fig. 4B), including controller for routing each time-slot of each frame independently through the switching matrices (time slots are routed separately for each set of calls, paragraphs 0025, 0023).

Regarding claim 34, Dally discloses a method of routing frames of data in defined time-slots through a switching network to fulfill a cross-connection request between a desired input and a desired output (desired input and output, Figs. 5-8, 10), wherein the switching network comprises an input stage consisting of a plurality of switching matrices (input stage comprising links ABCDEFGH going into a plurality of its switching matrices, paragraph 0043 and Fig. 4B), an intermediate stage consisting of a plurality of switching matrices (middle stage comprising links ABFCHDE going into its plurality of switching matrices, paragraph 0043 and Fig. 4B), and an output stage consisting of a plurality of switching matrices (output stage comprising links HDFABAEC going out of its plurality of switching matrices, paragraph 0043 and Fig. 4B), each

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input stage switching matrix having a link to each intermediate stage switching matrix (each input stage having a link to each middle stage matrix, paragraph 0043 and Fig. 4B), and each intermediate stage switching matrix having a link to each output stage switching matrix (each middle stage switching matrix having a link to each output stage switching matrix, paragraph 0043 and Fig. 4B), the method comprising the step of: routing each time-slot of each frame independently through the switching matrices (time slots are routed separately for each set of calls, paragraphs 0025, 0023).

Regarding claim 38, Dally discloses a method as claimed in claim 34, and the step of creating a list of free time-slots in the links between the intermediate stage switching matrices and the input and output stage switching matrices of the request when a cross-connection request is received (a set of free time slots are arranged between the middle stage for the set of calls, paragraphs 0025, 0023).

***Allowable Subject Matter***

5. Claims 21-23, 27-28, 31-32, 35-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 21, the switching network as claimed in claim 20, in which the routing controller is arranged to route each succeeding time-slot of the cross-connection request frame through the



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intermediate stage switching matrix having the link with the largest instantaneous number of free time-slots.

In claim 27, the switching network as claimed in claim 20, in which the number of intermediate stage switching matrices is less than twice the number of inputs of each input stage switching matrix.

In claim 31, the switching network as claimed in claim 20, in which each time-slot of the links corresponds to a frame having a data rate at least one sixteenth of that of the links.

In claim 35, the method as claimed in claim 34, in which the routing step is performed by routing each succeeding time-slot of the cross-connection request frame through the intermediate stage switching matrix having the link with the largest instantaneous number of free time-slots.

### ***Response to Arguments***

6. Applicant's arguments filed on 6/10/2009 have been fully considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chi H Pham/  
Supervisory Patent Examiner, Art Unit  
2416

/K. M./  
Examiner, Art Unit 2416